

ATTORNEY DOCKET NO: 63896

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : CANNON  
Serial No : 09/394,732  
Filed : September 13, 1999  
For : APPARATUS AND METHOD...  
Art Unit : 2877  
Examiner : Pham, H.  
Dated : December 7, 2000

Hon. Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

DECLARATION UNDER 37 C.F.R. §1.132

I, Mark Cannon, hereby state as follows:

1. I am the inventor of the invention disclosed and claimed in the above referenced U.S. patent application.
2. Since the introduction of the area array package or ball grid array (BGA) over 15 years ago, the single largest problem has been with the ability to control the process due to the fact that visual inspection after soldering was considered impossible. This standpoint has been documented by all international specifications including NASA, Military Specification 2000, and IPC. Additionally, in every publication written by world renown industry experts, visual inspection of the BGA after soldering is not possible but is needed based on the limitations of x-ray technology which is the state of the art. The high cost of x-ray inspection equipment has also been repeatedly noted in all international publications as a limiting and negative factor. The need for low cost, visual inspection for BGA components has been long felt and well documented. This is supported for example by the article by Phil Zarrow from the December 19, 1999 Circuits Assembly publication. Mr. Zarrow notes that the emergence of array packages has raised the question of how to inspect the inner connections. Mr. Zarrow notes that x-ray equipment as well as laminography equipment was initially used. Mr. Zarrow noted that x-ray equipment did not provide sufficient information with regard to defects like opens and voids.
3. Upon my invention being fully developed and sold, the reaction by the consuming public has been very good. The invention has met with extraordinary commercial success. As noted in Mr. Phil Zarrow's article, with the device of my invention, it is now possible to actually see under the array packages to visually examine the soldered joints and see many other critical things. The commercial success of the product has been substantial. This is evidenced by the attached list indicating various manufacturers that have bought or are using the device of the invention.

The success is also demonstrated by the numerous international innovation awards given to the invention and product according to the invention as detailed in the attached press release. To my knowledge, no single product has won all of these awards. This is an indication that there has been a long felt need and that the invention is indeed nonobvious. The device has only been on sale for a short time. The tremendous numbers of units placed and the various different companies that use the device of the invention highlights the acceptance of the product. The commercial success also highlights that the product has satisfied the long felt need with regard to solder joint inspection. The commercial success indicates the non-obvious aspect of the invention.

4. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Mark Cannon

63896.14

Enc.: Article by Phil Zarrow from the December 19, 1999 Circuits Assembly publication

International ERSASCOPE Users List

Press release indicating awards for product of the invention

## DECLARATION FOR PATENT APPLICATION

Docket No.63896

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: APPARATUS AND METHOD FOR THE VISUAL INSPECTION IN PARTICULAR OF CONCEALED SOLDERED JOINTS

the specification of which

(Check one) ☒ [X] is attached hereto.  
☐ [ ] was filed on \_\_\_\_\_ as  
Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed
<u>198 47 913.1</u>	<u>GERMANY</u>	<u>19-10-1998</u>	<u>YES</u>
(Number)	(Country)	(Day/Month/Year filed)	
_____	_____	_____	_____
(Number)	(Country)	(Day/Month/Year filed)	

I hereby claim the benefit under Title 35, United States Code, 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this

application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No)

(Filing Date)

(Patented, Pending, Abandoned)

(Application Serial No)

(Filing Date)

(Patented, Pending, Abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: **John J. McGlew, Reg. 17,722; and/or John James McGlew, Reg. 31,903; and/or Hilda S. McGlew Reg. 30,295; and/or Theobald Dengler, Reg. 34,575; and/or Kristina M. Grasso Reg. 39,205.**

Address all calls to: John James McGlew at telephone no. (914) 941-5600

Address all correspondence to:

**McGLEW AND TUTTLE, P.C.**

**SCARBOROUGH STATION**

**SCARBOROUGH, NEW YORK 10510-0827**

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor Mark CANNON

→Inventor's signature 

→Date 8th of September 1999

Residence: Ebinger Str. 26c, D-76139 Karlsruhe, GERMANY

Citizenship: United States

Post Office Address: Ebinger Str. 26c, D-76139 Karlsruhe, GERMANY

- (X) Enclosed  
( ) Authorized to be charged to deposit account  
( ) Already submitted

9. Deposit account number:  
13-0410

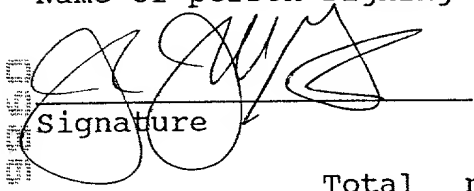
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10. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

John James McGlew  
Name of person signing

Reg. No. 31,903

  
Signature

September 13, 1999  
Date

Total number of pages comprising cover sheet, attachments, and documents 3

JJM:sk

Enclosures: - Assignment Document  
- Check for recording fee of \$40.00

SCARBOROUGH STATION  
SCARBOROUGH, NEW YORK 10510  
DATED: September 13, 1999

NOTE: IF THERE IS ANY FEE DUE AT THIS TIME, PLEASE CHARGE IT TO OUR DEPOSIT ACCOUNT NO. 13-0410 AND ADVISE.

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS EXPRESS MAIL, REGISTRATION NO. EL353837933US IN AN ENVELOPE ADDRESSED TO: COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, ON September 13, 1999

McGLEW AND TUTTLE, P.C., SCARBOROUGH STATION,  
SCARBOROUGH, NEW YORK 10510-0827

By: 

Date: September 13, 1999

ASSIGNMENT OF U.S. PATENT APPLICATION

WHEREAS, Mark CANNON, a citizen of United States, located (residing) at: Ebinger Str. 26c, D-76139 Karlsruhe, GERMANY has invented certain new and useful improvements in an invention entitled: *APPARATUS AND METHOD FOR THE VISUAL INSPECTION IN PARTICULAR OF CONCEALED SOLDERED JOINTS* and corresponding to 198 47 913.1 for which he/she is about to make/ has made application for Letters Patent of the United States of America;

AND, WHEREAS, ERSA Loettechnik GmbH, located and doing business at: Leonhard-Karl-Str. 24, D-97877 Wertheim, GERMANY (hereinafter referred to as Assignee) is desirous of acquiring an interest herein and in the Letters Patent to be obtained therefor from the United States;

NOW THEREFORE, be it known by all whom it may concern, that for and in consideration of the sum of One Dollar (\$1.00) (or the equivalent thereof in foreign currency) and other valuable consideration to me in hand paid, the receipt of which is hereby acknowledged, I have assigned, sold and set over and by these presents do assign, sell and set over unto the said Assignee for the territory of the United States of America and not elsewhere, the full and full exclusive right, title and interest in and to the said invention, as fully set forth and described in the specification prepared and executed by me on \_\_\_\_\_ filed \_\_\_\_\_, Ser. No. \_\_\_\_\_ preparatory to obtaining Letters Patent therefor; said invention, application and Letters Patent to be held and enjoyed by the said Assignee for its own use and behoof and for the use and behoof of its successors and assigns to the full end of the term for which said Letters Patent is granted, as fully and entirely as the same would have been held by me had this Assignment and sale not been made.

IN WITNESS WHEREOF, I have hereunto set my hand this 8 day of  
September, 19 99

  
Mark CANNON

In the presence of:

\_\_\_\_\_  
McGLEW AND TUTTLE, P.C.  
SCARBOROUGH STATION, SCARBOROUGH NY 10510-0827

ATTORNEY DOCKET NO. 63896

Applicant: CANNON

Serial No.:

Filed:

For: APPARATUS AND METHOD FOR THE VISUAL INSPECTION IN PARTICULAR OF CONCEALED SOLDERED JOINTS

VERIFIED STATEMENT (DECLARATION) CLAIMING  
SMALL ENTITY STATUS  
(37 CFR 1.9(f) and 1.27 (c)) SMALL BUSINESS CONCERN

I hereby declare that I am

- ☐ the owner of a small business concern identified below:  
☐ an official of the small business concern empowered to act on behalf of the concern identified below

NAME OF CONCERN ERSA Loettechnik GmbH

ADDRESS OF CONCERN Leonhard-Karl-Str. 24, D-97877 Wertheim, GERMANY

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract of law have been conveyed to the remain with the small business concern identified above with regard to the invention, entitled APPARATUS AND METHOD FOR THE VISUAL INSPECTION IN PARTICULAR OF CONCEALED SOLDERED JOINTS by inventor(s): Mark CANNON described in

- ☐ the specification filed herewith  
☐ application serial no. \_\_\_\_\_, filed \_\_\_\_\_  
☐ patent no. \_\_\_\_\_, issued \_\_\_\_\_

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9 (c) if that person made the invention or by any concern which would not qualify as small business concern under 37 CFR 1.9 (d) or a nonprofit organization under 37 CFR 1.9 (e). \*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
☐ [ ] SMALL BUSINESS CONCERN      ☐ [ ] NONPROFIT ORGANIZATION

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
☐ [ ] SMALL BUSINESS CONCERN      ☐ [ ] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING Dipl.-Ing. Rainer Kurtz  
TITLE OF PERSON OTHER THAN OWNER President  
ADDRESS OF PERSON SIGNING Gerhard Hauptmann Str.9, 97877 Wertheim

SIGNATURE       DATE 10.09.1999



DOROTHY RILEY, PARALEGAL  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

011241/0034 PAGE 2

8. Total fee (37 CFR 3.41) \$ 120.00  
(X) Enclosed  
( ) Authorized to be charged to deposit account  
( ) Already submitted

9. Deposit account number:  
13-0410

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10. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

John James McGlew  
Name of person signing

Reg. No. 31,903

  
Signature

October 13, 2000  
Date

Total number of pages comprising cover sheet, attachments, and documents 3

JJM:jms


Enclosures: - Assignment Document  
- Check for recording fee of \$120.00

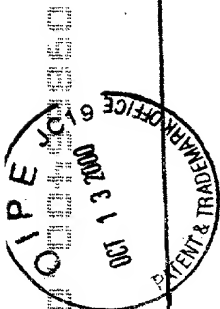
SCARBOROUGH STATION  
SCARBOROUGH, NEW YORK 10510  
DATED: October 13, 2000

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MCGLEW AND TUTTLE, P.C., SCARBOROUGH STATION,  
SCARBOROUGH, NEW YORK 10510-0827

By:  Date: October 13, 2000  
63896.8



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HRB

## Handelsregister - Abt. B - des Amtsgerichts Taubertal

a) Firma b) Sitz c) Gegenstand des Unternehmens	Grundkapital oder Stammkapital DM/EUR	Vorsand Persönlich haftende Gesellschafter Geschäftsführer Prokura	Rechtsverhältnisse	a) Tag der Eintragung und Unterschrift b) Bemerkungen
2	3	4	5	7
Betr.: ERSÄ Löttechnik GmbH Wertheim, Leonhard-Karl-Straße 24  -Eintragungsmittelung-  Verteiler: a) THK, Heilbronn b) FA, TBB c) Postamt Lauda/Wertheim d) Notar Dr. Ekkehard Mooser e) Notar Dr. Ekkehard Mooser zu: KJR. 935362.JAF # 114387 (FRA 269F01)				
15				a) 03. Mai 2000  Die Gesellschaftsversammlung vom 12. April 2000 hat die Änderung des Gesellschaftsvertrags in § 1 (Firma) beschlossen. Die Firma ist geändert.